

Chapter Four: Contents**(AS-2 – 10 December 2002 – LA-UR 01-5716 – Portland Study Reports)**

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Chapter Four—AS-2

NOTE: Long code lines that do not fit completely on one line of this document are shown in italics and continued on to the next line.

1. SHARED RIDES

1.1 Configuration Files

1.1.1 allstr_actgen.cfg

```

TRANSIMS_ROOT           /n/father/transims/CaseStudy3/scenarios/allstr
CONFIG_DEFAULT_FILE     $TRANSIMS_ROOT/allstr.cfg

ACTIVITY_FILE           $TRANSIMS_ROOT/activity/AS1.25
ACT_LOG_FILE             $TRANSIMS_ROOT/log/ActgenSharedRideAS1.25.log
#ACT_HOUSEHOLD_FILE      $TRANSIMS_ROOT/activity/hh
ROUTER_HOUSEHOLD_FILE    $TRANSIMS_ROOT/activity/hh
ACT_TRAVEL_TIMES_FILE    $TRANSIMS_ROOT/activity/traveltime_040601
ACT_TRAVEL_TIME_FUNCTION_MODES 1;2;3;7
ACT_SURVEY_ACTIVITY_FILE  $TRANSIMS_ROOT/data/survey_activities
ACT_SURVEY_WEIGHTS_FILE   $TRANSIMS_ROOT/data/survey_weights_25
ACT_TRAVEL_TIME_INTERVALS_FILE $TRANSIMS_ROOT/activity/time_intervals
LOG_ACT                  1
ACT_PROBLEM_FILE         $TRANSIMS_ROOT/activity/act.problems.srfb

# Selector Keys
SEL_MESSAGE_LEVEL        0
SEL_USE_START_ACT_LOCATION 1
SEL_USE_END_ACT_LOCATION   1
SEL_USE_START_ACT_TYPE     1
SEL_USE_END_ACT_TYPE       1
SEL_USE_START_MODE_PREF    1
SEL_USE_END_MODE_PREF      1
SEL_USE_EUCLID              1

```

1.2 Scripts

1.2.1 FixSharedRides

```
#!/bin/csh

setenv SCENARIO $TRANSIMS_HOME/scenarios/allstr
setenv CONFIG_FILE $SCENARIO/config_files/allstr_actgen.cfg
setenv LOG_DIR $SCENARIO/log
setenv ACTIVITY_FILE $SCENARIO/activity/AS1.25
setenv PARTIAL_FILE $SCENARIO/activity/apar
setenv PROBLEM_FILE $SCENARIO/activity/act.problems.25
setenv FEEDBACK_COMMANDS $SCENARIO/activity/fbh
setenv MERGE_INDICES $TRANSIMS_HOME/bin/MergeIndices
setenv TMP_CONFIG /tmp/allstr.cfg
setenv INDEXDEFRAG $TRANSIMS_HOME/bin/IndexDefrag

/bin/cp $CONFIG_FILE $TMP_CONFIG
/bin/chmod u+w $TMP_CONFIG

setenv ITER 1

/usr/bin/awk '{if ($1==1) print $3 " R"}' $PROBLEM_FILE | /bin/sort -n -u > $FEEDBACK_COMMANDS.$ITER

# Regenerate the households that had shared ride assignment problems.
echo "Regenerating activities to remove shared ride problems..." > $LOG_DIR/ActivityRegenerator.log

# Do 10 iterations
foreach i (1 2 3 4 5 6 7 8 9 10)
    echo "Activity Regenerator for shared rides iteration " $i >>&! $LOG_DIR/ActivityRegenerator.log
    echo "ACT_FEEDBACK_FILE " $FEEDBACK_COMMANDS.$ITER >> $TMP_CONFIG
    echo "ACT_PARTIAL_OUTPUT " $PARTIAL_FILE.$i >> $TMP_CONFIG
    echo "ACT_PROBLEM_FILE " $PROBLEM_FILE.$i >> $TMP_CONFIG $TRANSIMS_HOME/bin/ActivityRegenerator $TMP_CONFIG
>>&! $LOG_DIR/ActivityRegenerator.log
    setenv ITER `echo $ITER+1 | /usr/bin/bc`
    /usr/bin/awk '{if ($1==1) print $3 " R"}' $PROBLEM_FILE.$i | /bin/sort -n -u > $FEEDBACK_COMMANDS.$ITER
end

# Merge the partial activity set indexes with the original activity set index.
echo "Merging partial activity indexes.." >>& $LOG_DIR/ActivityRegenerator.log
$MERGE_INDICES $ACTIVITY_FILE.merged.hh.idx $ACTIVITY_FILE.hh.idx $PARTIAL_FILE.1.hh.idx $PARTIAL_FILE.2.hh.idx $PARTIAL_FILE.3.hh.idx
$PARTIAL_FILE.4.hh.idx $PARTIAL_FILE.5.hh.idx $PARTIAL_FILE.6.hh.idx $PARTIAL_FILE.7.hh.idx $PARTIAL_FILE.8.hh.idx
$PARTIAL_FILE.9.hh.idx $PARTIAL_FILE.10.hh.idx >>&! $LOG_DIR/ActivityRegenerator.log

# Create a merged activity file from the merged indexes
echo "Creating merged activity file.." >>& $LOG_DIR/ActivityRegenerator.log
$INDEXDEFRAG $ACTIVITY_FILE.merged.hh.idx $ACTIVITY_FILE.sfb >>&! $LOG_DIR/ActivityRegenerator.log
```

```
# Save the uniterated activity set and move the iterated one into the same filename that will be used by the Router.  
/bin/mv $ACTIVITY_FILE $ACTIVITY_FILE.beforesrfb  
/bin/mv $ACTIVITY_FILE.sfb $ACTIVITY_FILE  
  
# Clean up  
/bin/rm -f $TMP_CONFIG  
/bin/rm -f $PARTIAL_FILE.*  
/bin/rm -f $FEEDBACK_COMMANDS.*  
/bin/rm -f $PROBLEM_FILE.*  
  
echo "Finished." >>& $LOG_DIR/ActivityRegenerator.log
```

2. LONG WALKS

2.1 Configuration Files

2.1.1 allstr_actgen_long_walk.cfg

```

TRANSIMS_ROOT           /home/transims/CaseStudy3/scenarios/allstr

ACTIVITY_FILE           $TRANSIMS_ROOT/activity/activities

NET_DIRECTORY           $TRANSIMS_ROOT/network
NET_NODE_TABLE          Node.tbl
NET_LINK_TABLE          Link.tbl
NET_POCKET_LANE_TABLE   Pocket_Lane.tbl
NET_PARKING_TABLE       Parking.tbl
NET_LANE_CONNECTIVITY_TABLE Lane_Connectivity.tbl
NET_UNSIGNALIZED_NODE_TABLE Unsignalized_Node.tbl
NET_SIGNALIZED_NODE_TABLE Signalized_Node.tbl
NET_PHASENING_PLAN_TABLE Phasing_Plan.tbl
NET_TIMING_PLAN_TABLE   Timing_Plan.tbl
NET_SPEED_TABLE          Speed.tbl
NET_LANE_USE_TABLE       Lane_Use.tbl
NET_TRANSIT_STOP_TABLE   Transit_Stop.tbl
NET_SIGNAL_COORDINATOR_TABLE Signal_Coordinator.tbl
NET_DETECTOR_TABLE      Detector.tbl
NET_TURN_PROHIBITION_TABLE Turn_Prohibition.tbl
NET_BARRIER_TABLE        Barrier.tbl
NET_ACTIVITY_LOCATION_TABLE Activity_Location.tbl
NET_PROCESS_LINK_TABLE   Process_Link.tbl

#OUT_DIRECTORY           /home/Gershwinoutput1/allstr

ACT_HOME_HEADER          Home
ACT_WORK_HEADER           Work
ACT_ACCESS_HEADER          Tran_Dist
ACT_BLOCKGROUP_HEADER     BLOCKGROUP
ACT_TRACT_HEADER          TRACT
ACT_FEEDBACK_FILE         $TRANSIMS_ROOT/activity/activity.feedback
#ACT_MULTI_FAMILY_HEADER   MFR
ACT_PARTIAL_OUTPUT        $TRANSIMS_ROOT/activity/activities.partial
ACT_POPULATION_FILE       $TRANSIMS_ROOT/population/popConverted
ACT_PROBLEM_FILE          $TRANSIMS_ROOT/activity/act.problems
ACT_RANDOM_SEED            985456379
ACT_SHARED_RIDE_TIME_RANGE_MIN 1
ACT_SHARED_RIDE_TIME_RANGE_MEDIUM 1

```

ACT_SHARED_RIDE_TIME_RANGE_MAX	1
ACT_SHARED_RIDE_DISTANCE_RANGE	10
ACT_TRAVEL_TIME_INTERVALS_FILE	\$TRANSIMS_ROOT/data/time_intervals
ACT_TRAVEL_TIMES_FILE	\$TRANSIMS_ROOT/activity/travel_time_040601
ACT_TRAVEL_TIME_FUNCTION_MODES	1;2;3;7
ACT_MINIMUM_ADULT_AGE	16
ACT_DECISION_TREE_FILE	\$TRANSIMS_ROOT/data/decision_tree
ACT_MODE_WEIGHT_FILE	\$TRANSIMS_ROOT/data/mode_weight
ACT_ZONE_INFO_FILE	\$TRANSIMS_ROOT/data/zonedata
ACT_SURVEY_ACTIVITY_FILE	\$TRANSIMS_ROOT/data/survey_activities
ACT_SURVEY_HOUSEHOLD_FILE	\$TRANSIMS_ROOT/data/survey_households
ACT_SURVEY_WEIGHTS_FILE	\$TRANSIMS_ROOT/data/survey_weights_25
ACT_INITIAL_HOME_TIME_RANGE	0.75
ACT_OUT_OF_HOME_TIME_RANGE	0.5
ACT_HOME_DURING_DAY_TIME_RANGE	0.75
ACT_WORK_TIME_RANGE	0.25
ACT_END_OF_DAY_TIME_RANGE	0.75
ACT_MAX_END_TIME	36.0
ACT_DEFAULT_CAR_SPEED	15.0
ACT_DEFAULT_TRANSIT_SPEED	10.0
ACT_BICYCLE_MODE	7
ACT_WALKING_MODE	1
ACT_MAGIC_MOVE_MODE	8
ACT_DEFAULT_TRANSIT_MODE	3
ACT_LOCATION_CHOICE_EXPONENT	0.5
ACT_DEFAULT_INTRAZONE_DISTANCE	1500
ACT_AUTOMOBILE_MODE_1	2
ACT_AUTOMOBILE_MODE_2	5
ACT_AUTOMOBILE_MODE_3	6
ACT_ADJUST_TIMES	0
ACT_PERSON_DEMOG_RELATION_HEADER	RELATE
ACT_PERSON_DEMOG_WORKER_HEADER	WORK
ACT_PERSON_DEMOG_GENDER_HEADER	GENDER
ACT_PERSON_DEMOG_AGE_HEADER	AGE
ACT_REQUIRED_HH_DEMOG_1	HHSIZE
ACT_REQUIRED_HH_DEMOG_2	INCOME
ACT_REQUIRED_HH_DEMOG_3	ALT5
ACT_REQUIRED_HH_DEMOG_4	A5TO15
ACT_REQUIRED_HH_DEMOG_5	A26TO45
ACT_REQUIRED_HH_DEMOG_6	HHAGE
ACT_REQUIRED_HH_DEMOG_7	WORKERS
ACT_REQUIRED_HH_DEMOG_8	HDENSTY
ACT_HHDENSITY_HEADER	HH_Acre
ACT_HOME_ACTIVITY_TYPE	0
ACT_WORK_ACTIVITY_TYPE	1
ACT_SCHOOL_ACTIVITY_TYPE	7

```

# School specifications: age ranges, zone and location attractor values.

# Elementary and mid school
ACT SCHOOL LOWER BOUND_1      5
ACT SCHOOL UPPER BOUND_1      15

# High school
ACT SCHOOL LOWER BOUND_2      16
ACT SCHOOL UPPER BOUND_2      18

# Elementary and high school
ACT SCHOOL LOWER BOUND_3      5
ACT SCHOOL UPPER BOUND_3      18

# Elementary and mid school
ACT SCHOOL ZONE ATTRACTOR VALUE_1    1

# High school
ACT SCHOOL ZONE ATTRACTOR VALUE_2    2

# Both elementary/mid and high school
ACT SCHOOL ZONE ATTRACTOR VALUE_3    3

# Elementary and mid school
ACT SCHOOL LOCATION ATTRACTOR VALUE_1 1

# High school
ACT SCHOOL LOCATION ATTRACTOR VALUE_2 2

# Both elementary/mid and high school
ACT SCHOOL LOCATION ATTRACTOR VALUE_3 3

# Anchor Activity types

# Home
ACT ANCHOR ACTIVITY TYPE_1      0

# Work
ACT ANCHOR ACTIVITY TYPE_2      1

# School
ACT ANCHOR ACTIVITY TYPE_3      7

# College
ACT ANCHOR ACTIVITY TYPE_4      8

ACT ACTIVITY TYPE_1             0
ACT ZONE HEADER_1               Home
ACT LOCATION HEADER_1           Home
ACT PRIORITY_1                  2

```

ACT_ACTIVITY_TYPE_1	3
ACT_ACTIVITY_TYPE_2	1
ACT_ZONE_HEADER_2	Work
ACT_LOCATION_HEADER_2	Work
ACT_PRIORITY_2	2
ACT_TIME_PRIORITY_2	3
ACT_ACTIVITY_TYPE_3	2
ACT_ZONE_HEADER_3	Shop
ACT_LOCATION_HEADER_3	Shop
ACT_PRIORITY_3	7
ACT_TIME_PRIORITY_3	0
ACT_ACTIVITY_TYPE_4	3
ACT_ZONE_HEADER_4	Visit
ACT_LOCATION_HEADER_4	Visit
ACT_PRIORITY_4	4
ACT_TIME_PRIORITY_4	3
ACT_ACTIVITY_TYPE_5	4
ACT_ZONE_HEADER_5	Social
ACT_LOCATION_HEADER_5	Social
ACT_PRIORITY_5	4
ACT_TIME_PRIORITY_5	5
ACT_ACTIVITY_TYPE_6	5
ACT_ZONE_HEADER_6	Other
ACT_LOCATION_HEADER_6	Other
ACT_PRIORITY_6	8
ACT_TIME_PRIORITY_6	0
ACT_ACTIVITY_TYPE_7	6
ACT_ZONE_HEADER_7	Serve
ACT_LOCATION_HEADER_7	Serve
ACT_PRIORITY_7	4
ACT_TIME_PRIORITY_7	1
ACT_ACTIVITY_TYPE_8	7
ACT_ZONE_HEADER_8	School
ACT_LOCATION_HEADER_8	School
ACT_PRIORITY_8	3
ACT_TIME_PRIORITY_8	3
ACT_ACTIVITY_TYPE_9	8
ACT_ZONE_HEADER_9	College
ACT_LOCATION_HEADER_9	College
ACT_PRIORITY_9	3
ACT_TIME_PRIORITY_9	3
ACT_TAZ_HEADER TAZ	

```
# Selector Keys
SEL_MESSAGE_LEVEL          0
SEL_NO_ITDB_INDEX           1
SEL_ITDB_FILE                $TRANSIMS_ROOT/activity/wfb/itwalk
SEL_USE_START_ACT_TYPE      1
SEL_USE_START_MODE_PREF     1
SEL_USE_END_ACT_TYPE        1
SEL_USE_END_MODE_PREF       1
SEL_USE_EUCLID               1
SEL_USE_START_ACT_LOCATION   1
SEL_USE_END_ACT_LOCATION     1

ACT_FEEDBACK_FILE            $TRANSIMS_ROOT/activity/wfb/fbwalk
ACT_PARTIAL_OUTPUT           $TRANSIMS_ROOT/activity/wfb/wpar
ACT_PROBLEM_FILE              $TRANSIMS_ROOT/activity/wfb/wprob
ROUTER_HOUSEHOLD_FILE         $TRANSIMS_ROOT/activity/wfb/hh
SEL_ITDB_FILE                  $TRANSIMS_ROOT/activity/wfb/itwalk
SEL_HOUSEHOLD_FILE            $TRANSIMS_ROOT/activity/wfb/hh
ACTIVITY_FILE                 /home/transims/CaseStudy3/scenarios/allstr/activity/wfb/AS2.25
```

2.2 Scripts

2.2.1 FindLongWalks.pl

```
#!/usr/local/bin/perl

# find long walks to school in itdb file

use English;

open IN, "<$ARGV[0]" or die "Couldn't open $ARGV[0] for input ($OS_ERROR)\n";
open OUT, ">$ARGV[1]" or die "Couldn't open $ARGV[1] for output ($OS_ERROR)\n";
open LOG, ">>$ARGV[2]" or die "Couldn't open $ARGV[2] for output ($OS_ERROR)\n";

$count1 = 0;
while (<IN>)
{
    ($hh, $trav, $tour, $subtour, $trip, $sid, $eid, $stype, $smode, $sloc, $etype, $emode, $eloc, $dist) = split //,;
    if (($emode eq 1 && $dist > 2500) || # walk
        ($emode eq 7 && $dist > 7500)) # bike
    {
        if ($stype eq 7 || $etype eq 7) # school
        {
            print OUT "$hh $eid MS 9\n"; # school bus
            ++$count1;
        }
    }
}
print LOG "$count1 long school trips \n";
```

2.2.2 FixSchoolWalk

```
#!/bin/csh

setenv SCENARIO $TRANSIMS_HOME/scenarios/allstr
setenv CONFIG_FILE $SCENARIO/config_files/allstr_actgen_long_walk.cfg
setenv LOG_FILE $SCENARIO/log/FixSchoolWalk.log
setenv ACT_DIR $SCENARIO/activity/wfb
setenv SCRIPT_DIR $ACT_DIR
setenv ACTIVITY_FILE $ACT_DIR/AS2.25
setenv FEEDBACK_COMMANDS $ACT_DIR/fbwalk
setenv PARTIAL_FILE $ACT_DIR/wpar
setenv PROBLEM_FILE $ACT_DIR/regen.problems
setenv ITDB_FILE $ACT_DIR/itwalk
setenv TMP_CONFIG $ACT_DIR/walk.cfg
setenv MERGE_INDEX $TRANSIMS_HOME/bin/MergeIndices
setenv INDEXDEFRAG $TRANSIMS_HOME/bin/IndexDefrag
setenv COLLATOR $TRANSIMS_HOME/bin/Collator
setenv ACTREGEN $TRANSIMS_HOME/bin/ActivityRegenerator
setenv PERL /usr/bin/perl

/bin/cp $CONFIG_FILE $TMP_CONFIG
/bin/chmod u+w $TMP_CONFIG

echo "ACTIVITY_FILE      " $ACTIVITY_FILE >> $TMP_CONFIG
echo "SEL_ITDB_FILE      " $ITDB_FILE >> $TMP_CONFIG

# Regenerate the activities that had long walks.
echo "Regenerating activities to remove long walk/bike to school..." > $LOG_FILE

echo "Running Collator" >>&! $LOG_FILE
$COLLATOR $TMP_CONFIG >>&! $LOG_FILE

echo "Finding long walks in iteration database 0" >>&! $LOG_FILE
$PERL $SCRIPT_DIR/FindLongWalks.pl $ITDB_FILE.000.it $FEEDBACK_COMMANDS $LOG_FILE
echo "Running Activity Regenerator" >>&! $LOG_FILE
echo "ACT_FEEDBACK_FILE   " $FEEDBACK_COMMANDS >> $TMP_CONFIG
echo "ACT_PARTIAL_OUTPUT  " $PARTIAL_FILE >> $TMP_CONFIG
echo "ACT_PROBLEM_FILE    " $PROBLEM_FILE >> $TMP_CONFIG
echo "ACT_LOG_FILE        " $ACT_DIR/regen.log >> $TMP_CONFIG
$ACTREGEN $TMP_CONFIG >>&! $LOG_FILE

# Merge the partial activity set indexes with the original activity set index.
echo "Merging partial activity indexes.. " >& $LOG_FILE
$MERGE_INDEX $ACTIVITY_FILE.merged.hh.idx $ACTIVITY_FILE.hh.idx $PARTIAL_FILE.hh.idx >>&! $LOG_FILE

# Create a merged activity file from the merged indexes
echo "Creating merged activity file.." >& $LOG_FILE
$INDEXDEFRAG $ACTIVITY_FILE.merged.hh.idx $ACTIVITY_FILE.wfb >>&! $LOG_FILE
```

```
# Save the uniterated activity set and move the iterated one into the same filename.  
/bin/mv $ACTIVITY_FILE $ACTIVITY_FILE.beforewfb  
/bin/mv $ACTIVITY_FILE.wfb $ACTIVITY_FILE  
  
# Clean up  
/bin/rm -f $TMP_CONFIG  
/bin/rm -f $PARTIAL_FILE*  
/bin/rm -f $FEEDBACK_COMMANDS*  
/bin/rm -f $PROBLEM_FILE  
  
echo "Finished." >>& $LOG_FILE
```